

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Applicant:

Paul S. Collins

Serial No.: 10/039,015

Filed: January 2, 2002

For: Coil Spring Extension  
Mechanism for a PC Card

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Art Unit: 2833

Examiner: Alexander Gilman

Atty Docket: ITL.0691US  
P13222

Board of Patent Appeals & Interferences  
Commissioner for Patents  
Washington, D.C. 20231

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**APPEAL BRIEF**

Sir:

Applicant respectfully appeals from the final rejection mailed November 14, 2002.

**I. REAL PARTY IN INTEREST**

The real party in interest is the assignee Intel Corporation.

**II. RELATED APPEALS AND INTERFERENCES**

None.

**III. STATUS OF THE CLAIMS**

Claims 1, 2, and 10-17 are rejected. Each rejection is appealed.

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Date of Deposit: April 15, 2003  
I hereby certify under 37 CFR 1.8(a) that this correspondence is being deposited with the United States Postal Service as **first class mail** with sufficient postage on the date indicated above and is addressed to the Commissioner for Patents, Washington DC 20231.  
Cynthia L. Hayden  
Cynthia L. Hayden

#### **IV. STATUS OF AMENDMENTS**

All amendments have been entered.

#### **V. SUMMARY OF THE INVENTION**

Referring to Fig. 1, a personal computer (PC) card 10 may include a generally flat housing 12 having electrical contacts 14 on one edge and an extendable antenna 16 on the other edge. The housing 12 may house electronic components to implement wireless communications. For example, a personal computer may receive the card 10 and may thereby be able to wirelessly communicate with other personal computers.

Referring to Fig. 2, by pushing on the retracted antenna 16, the antenna 16 can be caused to spring outwardly. The antenna 16 includes an antenna element 18 that may be a flat metallic element.

Referring to Fig. 3, the card 10 may include a printed circuit board 22 with a plurality of components for implementing wireless communications. Those components may be electrically connectable to the antenna element 18 through a spring contact 24. The spring contact 24 on the printed circuit board 22 makes an electrical connection with the contact 26 when the antenna 16 is extended out of the housing 12.

The antenna 16 may include a traveler 20 on one end. The traveler 20 includes the contact 26 that makes an electrical connection to the spring contact 24 when the antenna 16 is extended. See specification at page 2, line 24 through page 3, line 22.

The outward extension of the antenna 16 is under control of a compressed coil spring 32 which includes an upper portion 32a and a lower portion 32b. The antenna 16 may be held in a retracted position against the force of the spring 32 by an L-shaped resilient catch 36. The catch 36 includes a transverse end 36a and a helical coil 34.

As referred to herein, “proximal” refers to items that are closer to the contact 14 and “distal” refers to items closer to the position where the antenna 16 extends outwardly from the housing 12. Thus, the helical coil 34 is proximal relative to the distal transverse end 36a of the catch 36.

The traveler 20 rides on a track 28 so as to extend from its proximal position shown in Fig. 3 to its distal position shown in Fig. 4. The extent of distal extension of the antenna 16 may be controlled by a stop 38 that limits the distal extension of the U-shaped housing 30 on the track 28.

Referring to Fig. 4, the spring 32 may be wound around a telescoping rod so as to push the traveler 20 distally, causing the antenna 16 to extend out of the housing 12. In this position, the end 36a of the catch 36 is released from the side of the traveler 20. The traveler 20 transitions distally over the track 28 to extend the antenna 16.

The side-to-side extension of the catch 36 is controlled by the tension supplied by the helical coil 34 and by the internal resiliency of the catch 36.

As noted in Fig. 4, the contact 24 makes contact with the contact 26 on the traveler 20, allowing radio frequency signals to be transmitted or received from the integrated circuits included on the printed circuit board 22.

The extent of outward extension of the antenna 16 from the housing 12 may be increased by offsetting the coil spring 32 from the track 28. That is, by allowing the coil spring 32 to actually extend beyond the track 28 at the proximal end, greater antenna 16 outward extension can be achieved. See specification at page 3, line 23 through page 5, line 8.

The printed circuit board 22 includes a protrusion 23 that engages a protrusion 25 on the traveler 20. This provides a snap action when the antenna 16 is retracted to its proximal position, shown on Fig. 3, from its distal position shown in Fig. 4.

Referring to Fig. 5, the traveler 20 rides on an L-shaped element 42 secured to the housing 12. One end of the helical coil 34 and one end of the spring 32 may be secured in the L-shaped member 42. Also secured to the L-shaped element 42 is the track 28. In one embodiment, the U-shaped housing 30 may include a cantilevered, L-shaped resilient arm 30 on each side of the track 28 to releasably, slideably engage and be guided by the track 28.

When the traveler 20 begins to extend distally from the position shown in Fig. 5, the end 36a of the catch 36 disengages from the traveler 20 to allow distal movement. Thus, the end 36a is flexed laterally, allowing the traveler 20 to extend distally, as shown in Fig. 6.

Turning next to Fig. 7, the end 36a travels in a groove 44 in the edge of the traveler 20. The groove 44 includes a generally straight portion 45 and, at the distal end, a generally heart-shaped portion 46. The heart-shaped portion 46 right side includes an inclined track portion 56 that causes the end 36a to extend away from the groove 44 and then to fall and be locked in to releasably locked position 50. In this position, the traveler 20 is held against distal extension outwardly of the housing 12. See specification at page 5, line 9 through page 6, line 9.

In order to free the antenna 16 for extension, the antenna 16 must be pushed proximally causing the protrusion 52 to wedge the end 36a to the left side of the heart-shaped portion 46 of the groove 44, as shown in Fig. 7, freeing the end 36a from its entrapment within the locked position 50. This release allows the spring 32 to take over, causing the end 36a to ride back down the track portion 54 and down the straight portion 45 while the antenna 16 extends distally.

Thus, referring to Fig. 8, when the end 36a is trapped in the position 50, the antenna 16 is releasably locked against distal movement. When the antenna 16 is pressed down, the protrusion 52 wedges the end 36a to the left allowing it to be released through the left lateral track portion 54.

In some embodiments the extent of movement of the traveler 20 may be significantly greater than with prior designs. For example, prior designs may provide for limited travel of approximately 17 millimeters. With embodiments of the present invention, a longer stroke of approximately 27 millimeters may be generated resulting in 5 millimeters of extra antenna 16 extension in some embodiments. See specification at page 6, line 10 through page 7, line 6.

## **VI. ISSUES**

### **A. Is Claim 1 Anticipated by Johnson?**

## **VII. GROUPING OF THE CLAIMS**

Claims 2 and 10-17 may be grouped with claim 1.

## **VIII. ARGUMENT**

### **A. Is Claim 1 Anticipated by Johnson?**

Claim 1 calls for a personal computer card including an extendible antenna, a coil spring to push the antenna from a retracted to an extended position, and a track laterally displaced with respect to the coil spring to guide the antenna as it is pushed to its extended position. Further, claim 1 calls for a catch that retains the antenna in the retracted position in the track, the catch being spring biased.

The office action contends that Johnson does disclose a catch. The Examiner alternately contends either that a spring biased catch as claimed is inherently present or, in fact, it is actually present.

The assertion that "Johnson should be inherently spring biased," "to prevent any jam in a case of a small inclination of the traveler (24) from a linear movement" is based on hindsight, not inherency. Here, taking the benefits of the claimed invention, the Examiner simply asserts that the prior art must have done the claimed invention because it is good. But, of course, the prior art did not do it because it nowhere mentions the possibility of using a spring biased catch. The prior art simply did not realize the benefits and the Examiner cannot contend that it inherently does so when there is no mention of the possibility.

The Examiner cannot justify an inherency rejection unless there is no other possible way that the structure operates. M.P.E.P. § 2112. There is another way that the prior art may operate. It may perform relatively poorly without the effect of spring bias. Therefore, the Examiner cannot rely on inherency.

Moreover, the suggestion that Figure 9 shows a spring biased catch is without any basis whatsoever. There is nothing whatsoever in connection with Figure 9 or its description which in any way describes, suggests, or implies that the catch is spring biased.

Therefore, the rejection is without foundation and should be reversed.

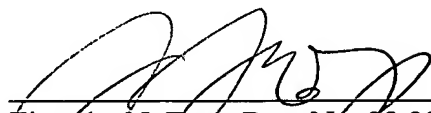
## IX. CONCLUSION

Applicant respectfully requests that each of the final rejections be reversed and that the claims subject to this Appeal be allowed to issue.

Respectfully submitted,

Date:

4/15/03



Timothy N. Trop, Reg. No. 28,994  
TROP, PRUNER & HU, P.C.  
8554 Katy Freeway, Ste. 100  
Houston, TX 77024  
713/468-8880 [Phone]  
713/468-8883 [Fax]

## APPENDIX OF CLAIMS

The claims on appeal are:

1. A personal computer card comprising:
  - an extensible antenna;
  - a coil spring to push the antenna from a retracted to an extended position;
  - a track laterally displaced with respect to the coil spring to guide the antenna as it is pushed to its extended position; and
  - a catch that retains the antenna in the retracted position in said track, said catch being spring biased.
2. The card of claim 1 wherein said track extends parallel to but is laterally displaced from the coil spring.
10. The card of claim 1 including a traveler that mounts said antenna and makes an electrical connection with a printed circuit board when said antenna is in its extended position.
11. A method comprising:
  - providing an extensible antenna in a personal computer card;
  - providing a coil spring that pushes the antenna from a retracted to an extended position;
  - displacing a track laterally with respect to said coil spring to guide the antenna as it is pushed to its extended position; and
  - providing a resiliently biased follower to ride in said track and to control the position of said antenna as it moves between retracted and extended positions.



12. The method of claim 11 including extending said track parallel to but laterally displaced from the coil spring.

13. The method of claim 11 including positioning a catch to releasably retain said antenna in the retracted position and enabling the catch to be released when the antenna is pushed beyond its retracted position.

14. The method of claim 13 including enabling the antenna to move more than 17 millimeters.

15. The method of claim 11 including enabling the antenna to move approximately 27 millimeters.

16. A traveler for extending an antenna out of a personal computer card, said traveler comprising:

an extensible antenna;

a coil spring that pushes the antenna from a retracted to an extended position; and

a track engaging element, said element laterally spaced with respect to the coil spring to enable the antenna to be guided as it is pushed to its extended position, said track engaging element being a cantilevered leaf spring.

17. The traveler of claim 16 wherein said track engaging element includes a U-shaped portion.

**TRANSMITTAL OF APPEAL BRIEF (Large Entity)**Docket No.  
ITL.0691US

In Re Application Of: Paul S. Collins

Serial No.  
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January 2, 2002Examiner  
Alexander GilmanGroup Art Unit  
2833

Invention: Coil Spring Extension Mechanism for a PC Card

TO THE ASSISTANT COMMISSIONER FOR PATENTS:

Transmitted herewith in triplicate is the Appeal Brief in this application, with respect to the Notice of Appeal filed on March 14, 2003.

The fee for filing this Appeal Brief is: \$320.00

- ☒ A check in the amount of the fee is enclosed.
- ☐ The Commissioner has already been authorized to charge fees in this application to a Deposit Account. A duplicate copy of this sheet is enclosed.
- ☒ The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 20-1504  
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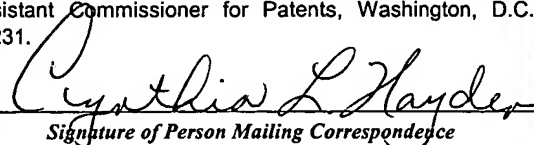
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Signature

Timothy N. Trop, Reg. No. 28,994  
Trop, Pruner & Hu, P.C.  
8554 Katy Freeway, Suite 100  
Houston, Texas 77024  
(713) 468-8880  
(713) 468-8883 (fax)

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Cynthia L. Hayden

Typed or Printed Name of Person Mailing Correspondence

CC: